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Clinical Contribution to Ophthalmology from the Practice of Dr. C. R. Agnew, of New York.

*With the Compliments of
the Author.*

REPORTED BY DR. D. WEBSTER.

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CLINICAL CONTRIBUTIONS TO OPHTHALMOLOGY FROM THE PRACTICE OF

DR. C. R. AGNEW, OF NEW YORK.

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CASE I.—*Lenticonus*.

JAMES K. W., æt. 24, a native of New York, came to consult us about his eyes, December 5, 1874. He stated that he had always had a slight divergent squint, and very poor eyesight, just as at present. He had tried to do different kinds of work, but had failed to satisfy himself and his employers by reason of the defect in his vision. He had gone from optician to optician without finding spectacles that would improve his sight.

Upon testing his vision for the near, it was found that he could read Jaeger No. 1 with either eye, at a maximum distance of three inches, and equally well at as near a point as the print could be approached to his eye and illuminated.

Tested for the distance : R V = $\frac{15}{200}$; with $-\frac{1}{1\frac{1}{2}}$ V = $\frac{20}{100}$; L V = $\frac{15}{200}$;
with $-\frac{1}{2}^s \subset -\frac{1}{10}^c$ axis 135° V = $\frac{20}{100}$.

Vision for reading not improved by any glass.

A four-grain solution of sulphate of atropin was then dropped into both eyes, and, the pupils being widely dilated and the accommodation paralyzed, the tests of vision and refraction gave the following result :

R V = $\frac{15}{200}$; with $+\frac{1}{10}^s$ V = $\frac{20}{40}$ (slowly). L V = $\frac{15}{200}$; with $+\frac{1}{10}^s \subset -\frac{1}{24}^c$ axis 135° V = $\frac{20}{40}$.

Both eyes presented very nearly the same appearances, when examined by means of the ophthalmoscope or oblique illumination.

Upon illuminating the eye with the ophthalmoscopic mirror, the appearances were strikingly similar to those of a limited kerato-conus, the centre of the pupil seeming to be surrounded by concentric rings or, when viewed in a certain light, having the appearance of a large

oil globule. But a glance with oblique illumination was sufficient to show that conical cornea did not exist.

Throwing the light upon the eye with the ophthalmoscope at a distance of about twelve inches, two images of the fundus could be seen simultaneously. (See the accompanying Fig. 1.) The central disc-like portion

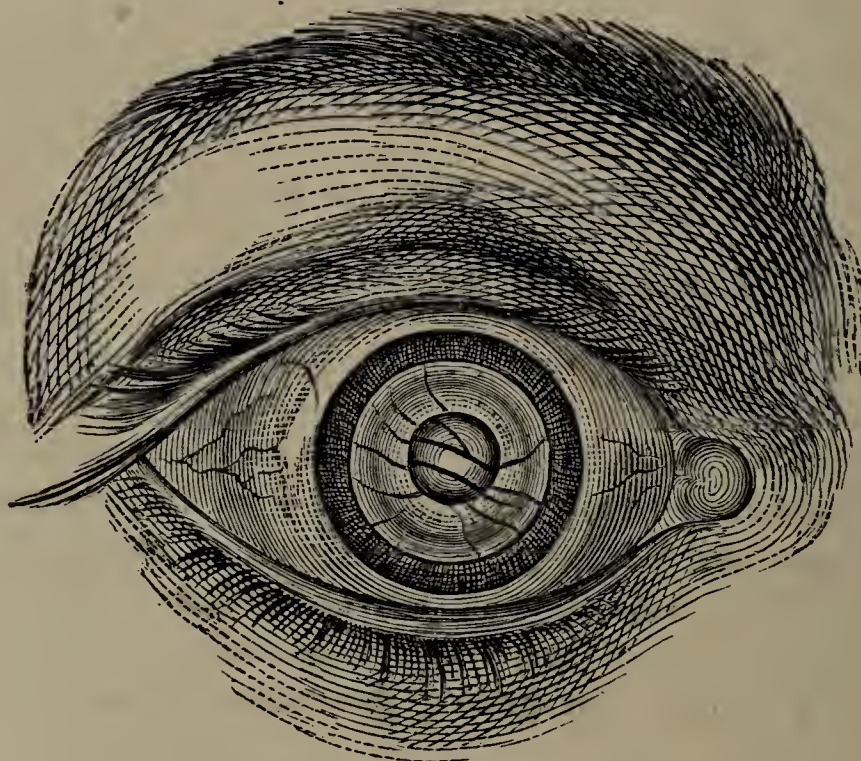


FIG. 1.

of the pupil showed blood-vessels which were suddenly lost at its periphery, and the peripheral portion which encompassed the central disc in the shape of a broad ring or zone showed blood-vessels, which appeared to terminate quite as abruptly at its inner border. The diameter of the central portion was about equal to the breadth of the surrounding zone, when the pupil was fully dilated.

The observer, on moving his head from side to side, could distinctly see that the vessels in the peripheric portion moved in the same direction, while those in the centre moved in an opposite direction. This could only be accounted for by the fact that the central portion of the eye was myopic, while the peripheral portion was hyperopic. The blood-vessels in the centre belonged to an ærial, inverted (real) image, whereas those of the periphery were seen in the virtual, upright image, which, in opposition to the former, showed a positive parallax in relation to the border of the pupil.

On approaching the eye to within half an inch, the fundus could be seen with tolerable distinctness through either a concave $\frac{1}{2}$ or a con-

vex $\frac{1}{10}$, according as the observer looked through the centre or the periphery of the pupil.

Examination by the indirect method showed a beautiful diplopia of the retinal vessels, both vertical and horizontal; and here, also, a parallax could easily be produced, the double-images being caused either to approach or to recede from one another by slight movements of the head or the objective lens.

We now come to the anatomical cause of these remarkable phenomena in the refraction of the eye. On illuminating the eye by the oblique method and looking *across* the anterior chamber, we could distinctly see the lens bulging forward at its centre in the form of a cone. Fig. 2 shows the form of the anterior surface of the lens as accurately as possible.

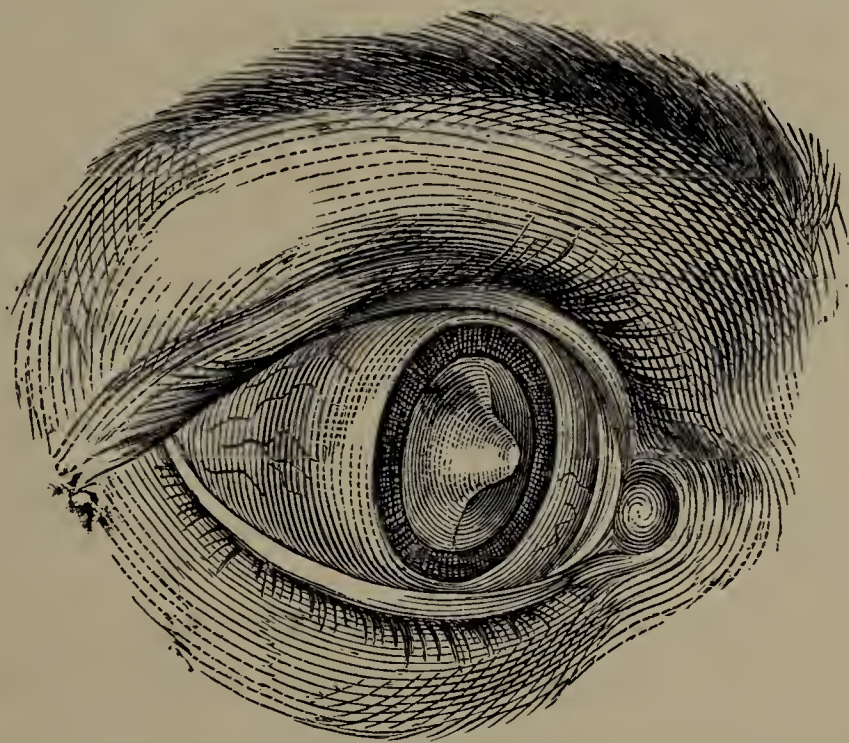


FIG. 2.

In analogy with the conical protrusion of the cornea, we have called this condition of the lens "*lenticonus*."

I may add that there was small posterior polar cataract, and that the whole posterior capsule was dotted over with very minute opacities, radiating from the posterior pole of the lens. The optic disc appeared a little too white, and there seemed to be delicate changes in the retina, probably congenital.

CASE II.—*Filamentous Opacity in the Vitreous Chambers of the Eyes.*

Miss M. H., 22, native of Ireland, applied to Dr. G. H. Bosley for relief from pain in her right eye, caused by a blow. Dr. Bosley sent her to

Dr. Agnew for examination. It was found that she had never had any defect of vision, or other trouble with her eyes, and that there were no physical signs of inflammation, past or present, to explain the cause of the neuralgia for which she had sought advice, nor was there any history of floating specks. Each eye was emmetropic with vision = $\frac{2}{0}$.

Examination with the ophthalmoscope developed a condition of things we never saw before, and which we shall endeavor to describe.

In the left eye was a filamentous body which had a dark, solid, cylindrical appearance, its anterior extremity attached to the posterior capsule of the lens, at a point about one line to the nasal side of the posterior pole of the lens in the horizontal meridian, its posterior extremity fixed in the vitreous humor at a point about 1.91 mm. anterior to the retina above, and to the nasal side of the optic disc, in the vicinity of a retinal vein. It appeared to be fixed in this position by an extension too transparent to be seen, attaching it to the vein, or to the adjacent retina.

This filamentous opacity was of uniform size, about the size of one of the primary branches of the *arteria centralis retinæ*, except at its extremities. Its anterior extremity was conical, the base of the cone applying itself to the posterior capsule of the lens, and its posterior extremity dwindled down to a point.

During movements of the eye, and for an instant afterwards, this curious body executed a series of wave-like movements, similar to those excursions which a rope would make when stretched loosely between two points and shaken.

When the eye was fixed, the filament quickly became motionless, invariably assuming the same position, forming a curved line, its concavity looking upwards.

In the right eye also there was a small opacity attached to the lens in a similar position. This also could be seen to make extremely limited excursions, showing that it was not an opacity of the posterior capsule, but an opacity *attached to* the posterior capsule by a short, transparent filament, the analogue of the more extensive opacity in the right eye.

The fact that there was no history of eye trouble of any kind, the absence of fixed or floating scotomata, and the symmetrical character of the opacities, all go to show that these lesions were congenital, and probably the result of physiological processes in the building up of the visual organs.

CASE III.—*Asthenopia from Spasm of Accommodation and Neuro-Choroidal Congestion.*

May 16, 1873. Brother A., a monk, aged 22, seeks relief from a persistent and severe asthenopia. He never had much trouble with his eyes until about two months previously, when he "began to grow very near-sighted." He became unable to recognize his friends across the street, and was obliged to hold his book much nearer than formerly. He has had severe pain in and about his eyes for two weeks, and this has increased for the last three or four days. His eyes are quite sensitive to the light. He is very nervous, trembling as though affected with slight paralysis agitans, and has a constant twitching of Horner's muscle.

He has been reading ten hours a day for the last five or six years. He gets seven and a half hours' sleep, and uses neither tobacco nor alcohol.

$V = \frac{10}{100}$; with $-\frac{1}{12}$ $V = \frac{20}{80}$, each eye.

The ophthalmoscope shows that he is not more than $\frac{1}{8}$ myopic. There is general hyperæmia of the optic nerve, retina, and choroid.

Insufficiency for 12" 9°; none for distance. Ordered to rest his eyes and return for further examination.

May 19. $V = \frac{20}{80}$ each, without glasses. Left eye under atropine $V = \frac{20}{60}$; no improvement with glasses.

Temporal side of disc slightly excavated; a very few, delicate, punctate changes in the fundus near the macula.

Ordered atrop. sulph. gr. 4 ad. $\frac{3}{4}$ i sol. three times a day, coquilles of a medium blue tint to enable him to bear the light, and moderate exercise in the open air several hours daily.

May 26. $V = \frac{20}{80}$ each, without glasses.

June 13. $V = \frac{20}{80}$; with $-\frac{1}{48}$ $V = \frac{20}{19}$. The instillations of atropia were then stopped. The patient was ordered to continue his out-door life, to adhere to a plain, nutritious diet, to attend to the functions of his skin by frictions, baths, etc., and to avoid all attempts at near use of his eyes until further instructions.

Oct. 2. $V = \frac{20}{80}$ each; Hm. $\frac{1}{36}$. With $+\frac{1}{36}$ reads Jaeger No. 1 from 8" to 15".

Spectacles $+\frac{1}{36}$ were then ordered for reading, and he was permitted gradually to resume his studies.

In this case the cause of the affection seems to have been long continued over-use of the eyes, together with a depressed condition of the general health, the result of his inactive, secluded

cloister life. The high degree of amblyopia was probably chiefly due to a low grade of choroiditis, affecting principally the region about the macula, the seat of direct vision. This may be deduced from the extreme chorio-capillary injection, and the delicate, punctate changes seen only in the vicinity of the macula.

The amount of lessening of the spasm of accommodation by three days of absolute rest of the eyes is remarkable, the patient seeing as well without glasses as before through a $-\frac{1}{1\frac{1}{2}}$. It is still more remarkable that after a constant use of atropia for nearly four weeks, a spasm of accommodation of about $\frac{1}{20}$ still remained. This disappeared entirely in a little more than three months, under no treatment, except absolute rest of the eyes and general hygienic measures. The increase of the acuity of vision seemed to keep pace with the gradual diminution of the spasm of accommodation.

CASE IV.—*Asthenopia from Spasm of Accommodation with Astigmatism; Aggravated by the Use of Unsuitable Glasses.*

Jan. 12, 1875. H. V. L., 21, states that he had measles when eight years old, which left him with weak eyes, and at the age of ten had scarlatina, which left them weaker still. He was, however, able to use them in studying until the age of seventeen, or four years ago, when, while attending college, they gave out entirely for the first time. He was at the time arising at 3 o'clock in the morning, and studying from that hour until late at night, in order to "make up conditions." His eyes were painful, and he soon began to grow short-sighted. He consulted Dr. Agnew, who advised him to quit college and engage in some healthful out-door occupation. He followed this advice for two years, when his eyes became so much improved that he considered it safe to recommence his college life. For the last two years he has been reading, on the average, six hours a day. During these two years he has had an attack of "neuralgia" in his eyes about once a month, each attack lasting about a week, and often so severe as to cause loss of sleep. His last attack commenced on the 19th of December, 1874, while engaged in a written examination at 8 o'clock in the morning. His vision suddenly became so much impaired that he could not see to get about, and remained so for an hour, when it gradually cleared up. He had severe pain in his eyeballs, extending through the back of his head. He has had more or less severe pain ever since. He smokes and chews tobacco excessively; habits otherwise good.

He has two pairs of spectacles, which were selected for him by his father, and which he wears when occasion requires. Examination shows that these spectacles are :—

1st pair, over R E -- $\frac{1}{9}$, over L E -- $\frac{1}{6}$.

2d pair, over R E -- $\frac{1}{7}$, over L E -- $\frac{1}{9}$.

The tests of vision and refraction give the following results :—

R E V = $\frac{20}{80}$; with -- $\frac{1}{24}$ ^s -- $\frac{1}{30}$ ^c axis 25° V = $\frac{20}{30}$.

L E V = $\frac{20}{100}$; with -- $\frac{1}{30}$ ^s -- $\frac{1}{20}$ ^c axis 160° V = $\frac{20}{30}$.

Examination with the ophthalmoscope, which was difficult because of the sensitiveness of his eyes to light, showed that there was, together with ametropia, the hyperæmia of the fundus usual in such cases. He was ordered a four-grain solution of sulphate of atropia to be dropped into both eyes three or four times a day, and blue coquilles.

His photophobia and pain disappeared after the second day, and he was so pleased with his ability to face the light, that he went about the most of the time without his colored glasses.

The atropine was kept up for six days, when ;—

R E V = $\frac{20}{30}$; with + $\frac{1}{24}$ ^s -- $\frac{1}{42}$ ^c axis 180°.

L E V = $\frac{20}{30}$; with + $\frac{1}{20}$ ^s -- $\frac{1}{48}$ ^c axis 135°.

As it was impossible for him to remain under observation longer, we ordered the above glasses for him to wear both for the near and for the distance, and sent him home.

In a letter, dated Jan. 27th, he says :— “When I first put on the glasses everything seemed to be in a haze, but I could read with ease. However, the next morning the haze was gone, and ever since I have been able to see distinctly with them.”

CASE V.—*Asthenopia from Spasm of Accommodation with Hypermetropia.*

Feb. 11, 1875. F. B. R., 16, student, complains of eyeballs smarting and aching, the latter especially on attempting to read. He has suffered for four or five years from headaches, which make him feel blind. He has slight conjunctivitis.

R E V = $\frac{20}{20}$; the weakest convex glasses blur.

L E V = $\frac{20}{30}$; with -- $\frac{1}{72}$ V = $\frac{20}{20}$.

No insufficiency.

Fundus seen well with + $\frac{1}{48}$.

He has, for two or three years, noticed a tendency to bring his book up to within eight inches of his eyes. Suspected spasm of accommodation, and placed him on atropine.

Feb. 13. R E H $\frac{1}{30}$. L E H $\frac{1}{36}$.

Feb. 16. H $\frac{1}{30}$ each eye.

Feb. 18. R E V = $\frac{20}{20}$, with + $\frac{1}{20}$. L E V = $\frac{20}{20}$, with + $\frac{1}{24}$.

Stopped the atropine.

Feb. 26. V = $\frac{20}{20}$; Hm $\frac{1}{36}$ each eye. Ordered + $\frac{1}{36}$ for constant use, instructing the patient that he would, by and by, have to exchange them for stronger glasses.

CASE VI.—*Foreign Body in the Eye; Sympathetic Kerato-Iritis of Fellow Eye; Enucleation; Recovery.*

E. B., 7, was brought to our office, July 20, 1874, by his mother, who stated that three days previously, while he was playing with a toy gun, the hammer accidentally struck the cap and the "sulphur flew into his eye." Examination showed a wound of the cornea on the nasal side just above the horizontal meridian; iris apparently cut through and adherent to corneal wound: no anterior chamber from constant leakage of aqueous; lens opaque. The eyeball was considerably reddened and the tension diminished, but the patient did not complain of pain.

Nobody had thought of the possibility that a piece of the cap might have entered the eye, and no search had been made for the fragments. As it was impossible to determine whether a foreign body was in the eye or not, we decided to give the child the benefit of the expectant plan of treatment. We applied atropine and a bandage; the bandage to be removed in case of pain, and iced applications substituted.

We carefully explained to the mother that the piece of cap might be in the eye, and that if so the fellow eye would probably sooner or later suffer from sympathetic inflammation, and that in such a case the only remedy would be a prompt removal of the injured eye. She was instructed to look at the eye critically every night and morning to see if it were becoming red, sensitive to light, or affected in any way.

A low grade of irido-choroditis set in, which, without pain, resulted in atrophy of the eyeball.

Sept. 1. Seven and a half weeks after the injury, the patient comes to us with sympathetic inflammation of the fellow eye. The mother asserts that she examined the eye the night before and it looked as well as ever. This morning she found the eye reddened, moderately sensitive to light, with a good deal of impairment of sight. We found so much opacity of the refractive media that a very indistinct view of the fundus could be obtained. There were several adhesions of the iris to the anterior capsule of the lens, which did not yield to atropine used *coup sur coup*. We enucleated the injured eye in the afternoon of the same day.

Sept. 2. Adhesions have disappeared, pupil circular and dilated about one-half; still considerable redness and lachrymation.

Sept. 3. Pupil well dilated; much less redness and lachrymation.

Sept. 5. Brought to office; very little redness; numerous minute, dot-like opacities seen on posterior surface of cornea and on anterior capsule.

Sept. 11. Redness entirely disappeared; pupil still widely dilated, dot-like opacities remain. To use atropine only once a day, and return in a week.

Sept. 17. Some redness near corneal margin appeared to-day. Atropine thrice daily, and Syr. Fer. Iodid. gtt. vij. *ter in die*.

Sept. 26. The atropine has been neglected; synechia posterior at upper margin of pupil.

Sept. 28. Pupil more evenly dilated, but still much diffuse opacity of media and redness of eye. Tension reduced. Ord. Hydr. Bichlor. gr. $\frac{1}{32}$ *ter in die*, and painted brow with strong Tincture of Iodine. This painting was repeated three times with excellent effect.

Oct. 2. Pupil again widely dilated; less redness.

Oct. 21. Media remarkably cleared up, and vision correspondingly improved.

Nov. 10. Pupil normal; no opacity of media; fundus hyperæmic. The eyeball seems to be a little too soft.

Dec. 2. The child was seen for the last time. The eye seemed quite well, except a few small black specks on the anterior capsule, at the border of the pupil, the results of the broken up adhesions.

As the child had not learned his letters, it was difficult to test his vision accurately, but, as near as could be ascertained, it was up to the normal standard.

The enucleated eye was cut open, after remaining in Müller's fluid about three months. A little more than one-third of the gun-cap was found embedded in a filamentous mass, the result of inflammatory proliferation, lying close to the retina, at a point about two lines to the nasal side of the optic disc, and was as bright as the day it went into the eye.

The iris was in contact with the cornea, and lying close behind it was the small portion of the lens remaining unabsorbed, and surrounding it was a proliferous mass similar to that encapsulating the foreign body.

CASE VII.—*Paresis of Superior Oblique, followed by large Central Scotoma ; Subsequent Atrophy of Optic Nerve ; Incomplete Recovery of Vision.*

June 3, 1874. Mrs. B. came to the Manhattan Eye and Ear Hospital complaining of seeing everything double. $V = \frac{2}{20}$, each eye emmetropic. The image seen with the left eye was lower than the other, and inclined. The diagnosis was paresis of the superior oblique. The cause could not be ascertained with any degree of certainty. She gave no history of syphilis ; her urine was free from albumen ; she had never been troubled with malarial disease ; but for the last year or eighteen months she had suffered at each of her menstrual periods with a throbbing headache, or “ a beating in the top of her head.”

She was ordered a saturated solution of iodide of potassium, and directed to take ten drops three times a day, and add one drop to the dose daily until some of the physiological effects of the drug were produced, and then to come and see us again.

July 10. Patient states that she saw perfectly well until a few days ago, when, one morning, soon after rising, she noticed that things looked differently from usual, so she covered her right eye, and saw only a very thick mist before the left. This mist thickened up in the centre during the day, so that her visual field became dark, except at its extreme periphery. She now is able to count fingers in the periphery, but does not see objects at all in the central portions of the field.

The ophthalmoscopic signs are negative, the refractive media and fundus appearing entirely normal.

The patient states that soon after we first saw her she was attacked with a headache, which had no connection with menstruation ; a severe “ neuralgia of the head ” occurring once or twice a week, and lasting two or three days at a time.

The cause of her eye trouble was believed to be intra-cranial, perhaps a slight basilar meningitis. She was ordered injections of strychnine, commencing with a fortieth of a grain, and gradually increasing until constitutional effects were reached. She was also ordered to take a mixture consisting of potas. iodid., ammon. bromid., ammon. sesquicarb., and tinct. columb.

Sept. 25. $V = \frac{2}{20}$ in periphery of field, showing slight improvement. No abatement of headache. Advised to stop the strychnia, and to resort to mercurial inunction.

The ophthalmoscopical appearances are still those of a normal eye.

Jan. 7, 1875. $V = \frac{7}{200}$; the central scotoma is evidently smaller. The ophthalmoscope now shows incipient atrophy of the optic nerve.

The patient has not used mercurial inunction on account of the vulgar prejudice against the drug. Advised again to use it, as the headache is as bad as ever.

April 2. $V = \frac{20}{70}$, and central. Atrophic appearances more marked. The improvement in sight began some time after mercurial inunction was stopped. Headache still intense. Ordered potas. bromid. in half-drachm powders—one to be taken three times a day, and another at bed-time, if there still be headache.

April 16. $V = \frac{20}{50}$. Has been troubled very little with the headache since she began to take the powders. The optic nerve does not seem to have changed in appearance since the last examination.

